

XX Jegia TJ, Wickenden A, Liu Y,
PT
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XX WPI, 2000-533179/48.
DR
DR P-PSDB, AAB08818.
XX
XX
PT Isolated beta subunit polynucleotides and polypeptides of *Sio* potassium
PT channels are used to determine the effects of compounds on ion flux
PT through a potasssium channel and in computer modelling systems.

PS ~~Claim~~ 7; Page 79; 84pp; English.
vv

The present sequence encodes a human BK beta-2 polypeptide. The polypeptide is a beta subunit of a Slo potassium channel. The specification also describes BK beta-3 and BK beta-4 polypeptides. BK beta subunits are auxiliary subunits or monomers of Slo potassium channels. The polypeptides, when expressed in cells and cell membranes, are used to determine the effects of compounds on ion flux through a potassium channel. The compounds identified may be useful as therapeutic agents e.g. modulators that target specific Slo channels are useful for treating migraines, hearing and vision problems, seizures, stroke, asthma, cell proliferation and hormone secretion. The computer generated 3-dimensional structures of BK beta 2, BK beta 3 or BK beta 4 are used to identify ligands that bind to the beta subunit. The characterized BK beta subunits are used to determine how Slo potassium channels function in different environments and how they respond to different activation mechanisms. The polypeptides are used to transfect cells in vivo and in vitro to mitigate effects of absent, partial inactivation or abnormal expression of the BK beta subunit gene e.g. to correct genetic defects, cancer and viral infection.

5Q Sequence 774 BP; 223 A; 177 T; 179 G; 195 T; 0 U; 0 Other;

[illegible]

US-09-914-053A-1 (1-257) X AAA75009 (1-774)

QY	1	MetThrAlaPheProIaSerGlyValValValValGluTnnaSPGlyrSerAspGlyAspPro	20
Db	1	ATGACACCCCTTCTCTGCTCCGAGGAAGAAAGAGAGACAGACTACAGTGAAGAGACCCA	60
QY	21	LeuAspValHisIleValArgLeuProSerSerThrGlyAluAspArgAlaValMetLeuGly	40
Db	61	CTGAGATGTGACAAAGAGGCTGCATCCATGTACTGGAGAGAGACCGAGCGGTATCTGGG	120
QY	41	PheAlaMetMetCylPheSerValLeuMetPhePheLeuAluGlyThrThrIleLeuLys	60
Db	121	TTTGCCATGATGGGCTTCTCAGCTCTTAAGTCTCTTGGCTGGAAACAACCATTCMAAG	180
QY	61	ProPheMetLeuSerIleGlnArgGluGluSerThrCysThrAlaIleHisThrAspIle	80
Db	181	CCTTTATGTCTGACGATTCAGAGAGAAAGATGACTGCATCTGCCATCCACACAGATTC	240
QY	81	MetAspAspTrpLeuAspCysAlaPheThrCysGlyValHisCysHisGlyGlnGlyLys	100
Db	241	ATGACACACGCGCTGACACTGTGCCTTCACTCTGTGTGACCTGCCACGCTCAGGGGAG	300
QY	101	TyrProCysLeuGlnValPheValaLeuMetSerHisProGluGlnValAlaLeuLeuHis	120
Db	301	TACCCGTCGTTCAAGGTGTTGTGAACCTTCAACCCATCCAGGTGCAAAAGCTCTCTCAT	360
QY	121	TyrAsnGlnGluAlaValGlnIleAsnProLysCysPheTyrThrProLysCysHisGln	140
Db	361	TATATAGAAGAGGCTGCCAGATAAATCCCAAGTCTTTTACACCTTAAGTCCACCA	420
QY	141	AspArgAsnAspLeuLeuMetSerAlaLeuAspIleLysGluPhePheAspHisLysAsn	160

Db	42	GATAGAAATGATTTGCTCAACAGTCTCTGGACATTAAGAATCTTCGATCACAAAAT	180
Oy	181	GIYThProPhSerCysPheThySerProAlaSerGlnSerGluAspValIleLeuIle	180
Db	481	GGAGACCCCTTTCACGCTTCAACGTACGACGACGCCATCTGAAGAGTCATCTTATA	540
Oy	181	LysLysTyAspGlnMetAlaIlePheHisCysLeuPheTrpProSerLeuThrLeuLeu	200
Db	541	AAAAATGATAGACCAATGCTCATCTTCCACGTTATTATTTGGCTTCACATCTCTCTA	600
Oy	201	GIYGIAlaIleuIleValGIYweFAlArdeuThrglnHisLeuSerLeuLeuCysGlu	220
Db	601	GGGGGGCCCTATGTTGTTGGCATGGTGAGATGACACACACCTGCTTACTGTGAA	660
Oy	221	LysTySerThrValValAlaArgAspGluValGIYGIYIleValProTyrIleGluGlnHis	240
Db	661	AATATATAGACACTGTATGTCAGACATATAGGTAGGTGAAAAGTATCTTATATGAACACAT	720
Oy	241	GlnPheLysLeuCysIleMetArgArgSerLeuGIYAlaArgAlaGluLysSer	257
Db	721	CAATTCAACTGTGCATTATGAGGGAGGACAAAGAACGGACGGAATCT	771

RESULT 2

ID	AAF27993	standard; DNA; 1632 BP.
1	1	1

AC AAF27993 ;

DT 08-MAY-2001 (first entry)
XX

DE Human calcium sensitive potassium channel beta3b subunit coding sequence.

KM Human; calcium sensitive potassium channel; beta2 subunit; asthma;
 KM beta3a subunit; beta3 subunit; beta3c subunit; diabetes;
 KM chromosome 3q23; inhibitory; activator; glaucoma; migraine; angina;
 KM irritable bowel syndrome; Alzheimer's disease; ds.

OS Homo sapiens

PN WO200105828-A1.

PD 25-JAN-2001.

PF 18-JUL-2000; 2000MO-US019585.

PR 20-JUL-1999; 99US-0144764P.

PA (MERI) MERCK & CO INC.

PI Uebele V, Swanson R, Liu Y, Lagrutta A, VY

DR WPI; 2001-159514/16

NOTES

PT Novel human calcium sensitive potassium channel subunits for identifying
PT inhibitors and agonists of the potassium channel for use in treating
PT conditions such as asthma, hypertension, memory disorders, depression.

PS Claim 3; Fig 3A; 89pp; English

CC The present invention provides the protein and coding sequences of the
CC human calcium sensitive potassium channel beta2, beta3a, beta3b, beta3c
CC and beta3d subunits. These can be used to identify inhibitors and
CC activators of the channels, which can be used in the treatment of
CC conditions including asthma, diabetes, glaucoma, cerebral ischaemia,
CC Alzheimer's disease, excessive smooth muscle tone, angina, hypertension,
CC incontinence, migraine and irritable bowel syndrome. The coding sequences
CC are found at human chromosome 3q23-ter. The present sequence is the
CC beta3b subunit coding sequence

Sequence 1632 BP; 542 A; 332 C; 407 G; 351 T; 0 U; 0 Other;

Alignment Scores:

3-dimensional structures of BK beta 2, BK beta 3 or BK beta 4 are used to identify ligands that bind to the beta subunit. The characterized BK beta subunits are used to determine how Slo potassium channels function in different environments and how they respond to different activation mechanisms. The polynucleotides are used to transfect cells in vivo and in vitro to mitigate effects of absent, partial inactivation or abnormal expression of the BK beta subunit gene e.g. to correct genetic defects, cancer and viral infection

Sequence 257 AA:

Query Match 100.0%; Score 1385; DB 3; Length 257;
Best Local Similarity 100.0%; Pred. No. 9,3e-140;
Matches 257; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MTAFPASGKKRETDYSDGDLVDHKLPSSTGSDRAVLMGFAMMGPSVLMFLLGTTILK 60
DB 1 MTAFPASGKKRETDYSDGDLVDHKLPSSTGSDRAVLMGFAMMGPSVLMFLLGTTILK 60
QY 61 PFMLSIOREESTCTAHTDMDMDLCAFTCGVHCHGQGXPCLOQVFNLSHPGQXALLH 120
DB 61 PFMLSIOREESTCTAHTDMDMDLCAFTCGVHCHGQGXPCLOQVFNLSHPGQXALLH 120
QY 121 YNEBAVOINPKCFYTPKCHODRNDLNSALDIKEFPDHKNGTPSCFYSPPASQSEVILI 180
DB 121 YNEBAVOINPKCFYTPKCHODRNDLNSALDIKEFPDHKNGTPSCFYSPPASQSEVILI 180
QY 181 KKYDQVAIFHCLFMPSTLLGALIVGMVRLTQHLSTLCCKYSTVVRDEVGKVPYIEQH 240
DB 181 KKYDQVAIFHCLFMPSTLLGALIVGMVRLTQHLSTLCCKYSTVVRDEVGKVPYIEQH 240
QY 241 QFKLCIMRSKGRAEKS 257
DB 241 QFKLCIMRSKGRAEKS 257

RESULT 2

AAB35303 standard; protein; 257 AA.

AC AAB35303;

DT 08-MAY-2001 (first entry)

DE Human calcium sensitive potassium channel beta3b subunit.

KM Human; calcium sensitive potassium channel; beta2 subunit; asthma;
KM beta3a subunit; beta3b subunit; beta3c subunit; diabetes;
KM chromosome 3q23-ter; inhibitor; activator; glaucoma; migraine; angina;
KM irritable bowel syndrome; Alzheimer's disease.

OS Homo sapiens.

PN WO200105628-A1.

PD 25-JAN-2001.

PF 18-JUL-2000; 2000WO-US019585.

PR 20-JUL-1999; 99US-0144764P.

PA (MERI) MERCK & CO INC.

PI Uebele V, Swanson R, Liu Y, Lagrutta A;

DR WPI; 2001-159514/16.

DR N-PDB; AAF27993.

PT Novel human calcium sensitive potassium channel subunits for identifying
PT inhibitors and agonists of the potassium channel for use in treating
PT conditions such as asthma, hypertension, memory disorders, depression.

PS Claim 9; Fig 3B; 89pp; English.

The present invention provides the protein and coding sequences of the human calcium sensitive potassium channel beta2, beta3a, beta3b, beta3c and beta3d subunits. These can be used to identify inhibitors and activators of the channels, which can be used in the treatment of conditions including asthma, diabetes, glaucoma, cerebral ischaemia, Alzheimer's disease, excessive smooth muscle tone, angina, hypertension, incontinence, migraine and irritable bowel syndrome. The coding sequences are found at human chromosome 3q23-ter. The present sequence is the beta3b subunit

Sequence 257 AA:

Query Match 100.0%; Score 1385; DB 4; Length 257;
Best Local Similarity 100.0%; Pred. No. 9,3e-140;
Matches 257; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MTAFPASGKKRETDYSDGDLVDHKLPSSTGSDRAVLMGFAMMGPSVLMFLLGTTILK 60
DB 1 MTAFPASGKKRETDYSDGDLVDHKLPSSTGSDRAVLMGFAMMGPSVLMFLLGTTILK 60
QY 61 PFMLSIOREESTCTAHTDMDMDLCAFTCGVHCHGQGXPCLOQVFNLSHPGQXALLH 120
DB 61 PFMLSIOREESTCTAHTDMDMDLCAFTCGVHCHGQGXPCLOQVFNLSHPGQXALLH 120
QY 121 YNEBAVOINPKCFYTPKCHODRNDLNSALDIKEFPDHKNGTPSCFYSPPASQSEVILI 180
DB 121 YNEBAVOINPKCFYTPKCHODRNDLNSALDIKEFPDHKNGTPSCFYSPPASQSEVILI 180
QY 181 KKYDQVAIFHCLFMPSTLLGALIVGMVRLTQHLSTLCCKYSTVVRDEVGKVPYIEQH 240
DB 181 KKYDQVAIFHCLFMPSTLLGALIVGMVRLTQHLSTLCCKYSTVVRDEVGKVPYIEQH 240
QY 241 QFKLCIMRSKGRAEKS 257
DB 241 QFKLCIMRSKGRAEKS 257

RESULT 3

AAW78995 standard; protein; 277 AA.

AC AAW78995;

DT 06-NOV-2001 (first entry)

DE Human protein SEQ ID NO 1657.

KM Human; cytokine; cell proliferation; cell differentiation; gene therapy;
KM vaccine; peptide therapy; stem cell growth factor; haematopoiesis;
KM tissue growth factor; immunomodulatory; cancer; leukaemia;
KM nervous system disorder; arthritis; inflammation.

OS Homo sapiens.

PN WO200157190-A2.

PD 09-AUG-2001.

PF 05-FEB-2001; 2001WO-US004088.

PR 03-FEB-2000; 2000US-00496914.

PR 27-APR-2000; 2000US-00560875.

PR 20-JUN-2000; 2000US-00598075.

PR 19-JUL-2000; 2000US-00620325.

PR 01-SEP-2000; 2000US-00649361.

PR 15-SEP-2000; 2000US-00663561.

PR 20-OCT-2000; 2000US-00693325.

PR 30-NOV-2000; 2000US-00728422.

PA (HYSE-) HYSEQ INC.

PI Tang YT, Liu C, Dermanac RT, Asundi V, Zhou P, Xu C, Cao Y;